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ABSTRACT

Using a sample of 7,656 children observed over a 3-year period in the Survey of Income and Program Participation (SIPP), the paper documents the proportion of time children spend in various living arrangements and the number of transitions among them. It focuses on four types of living arrangements for children: living with a married mother; coresiding with a single mother and her parents; cohabiting with a single mother and her male partner; and living with a single mother who is neither coresiding nor cohabiting. A substantial number of children experience coresiding and cohabiting arrangements, and approximately 11 percent of the children experience at least one transition. Results suggest that living with a single mother or living in a cohabiting arrangement is associated with poorer child development outcomes relative to living in married mother arrangements. In contrast, children in coresiding arrangements do not have poorer outcomes relative to children in married mother arrangements. (Contains 35 references.) (Author/SM)

Living arrangements of single-mother families: Variations, transitions, and child development outcomes

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ABSTRACT

Using a sample of 7,656 children observed over a three-year period in the Survey of Income and Program Participation (SIPP), we document the proportion of time children spend in various living arrangements and the number of transitions among them. We focus on four types of living arrangements for children: (a) living with a married mother; (b) coresiding with a single mother and her parent(s); (c) cohabiting with a single mother and her male partner; and (d) living with a single mother who is neither coresiding nor cohabiting. A substantial number of children experience coresiding and cohabiting arrangements, and approximately 11% of the children experience at least one transition. Results suggest that living with a single mother or living in a cohabiting arrangement is associated with poorer child development outcomes relative to living in married mother arrangements. In contrast, children in coresiding arrangements do not have poorer outcomes relative to children in married mother arrangements.

Living arrangements of single-mother families: Variations, transitions, and child development outcomes

INTRODUCTION

A considerable amount of research has documented that growing up in a single mother family is associated with adverse child developmental outcomes. However, studies mostly have ignored the diversity of living arrangements among single mothers and the frequency of living arrangements transitions that occur, both of which may affect child outcomes. Key under-researched living arrangements include single mothers who coreside with a parent (i.e., a child's grandparent) and single mothers who cohabit with male partners. Not only do we lack basic descriptive information about the number and characteristics of children experiencing these increasingly prevalent living arrangements, but also we lack information regarding whether children experiencing these different living arrangements, and transitions among them, exhibit differences in development outcomes. This project uses longitudinal data collected on a tri-annual basis to investigate these questions.

Specifically, we document the proportion of time children spend in various single-parent living arrangements and the number of transitions among them over a 3-year period. We then assess the association between time spent in various living arrangements, the number and type of transitions in these arrangements, and outcomes relevant for child development.

BACKGROUND

Single parents account for 28% of all households with children (U.S. Bureau of the Census 1998), and estimates indicate that between 50 and 60% of children born during the 1990s will spend some time living with a single parent, usually their mother (Bumpass and Sweet 1989;

Cherlin and Furstenberg 1991). Children in single-mother families are increasingly in the public policy spotlight due, among other things, to their high rates of poverty and welfare use. In 1998, for example, almost half (46%) of all children living in female-headed families were poor. In contrast, only 9% of children who lived in married-couple families were poor in that year (Child Trends 1999).

Perhaps not surprisingly, research has consistently shown that growing up in a single-parent family has negative consequences for children (McLanahan and Sandefur 1994). However, most of this research uses a dichotomous variable to indicate simply whether a child lives with a single-parent (usually the mother), thus obscuring the many possible kinds of single-parent families. In particular, research on living arrangements and child development has neglected the role of single mothers' coresidence with their own parent(s), as well as their unmarried cohabitation with male partners. This is true of the literature on never-married as well as divorced mothers. However, these living arrangements are relatively prevalent—43% of never-married mothers live with their parents and 17% are cohabiting with a male partner at the time of their child's birth (Jayakody and Snyder 1998). Coresidence and cohabitation are also common among divorced mothers. Within ten years of a marital disruption, about 30% of single mothers have co-resided; 50% have entered cohabiting relationships within four years (Jayakody 1999). Estimates suggest that approximately one in four children will live in a family headed by a cohabiting couple some time during childhood (Graefe and Lichter 1999).

Besides using a dichotomous measure of family structure status, many studies, particularly those investigating child outcomes, measure living arrangements at a single point in time (but see Wu and Martinson [1993] for an exception). These snapshot measures overlook the dynamic nature of family structure and the many changes in living situations that occur

during a child's life. Just as entrances into coresidential and cohabiting situations produce important variations in single mother families, transitions among these arrangements result in additional diversity. Among the small number of child development studies that follow mothers and their children over time, most have focused on post-divorce living arrangements and have not examined over-time patterns of living arrangements. Moreover, this research has typically only assessed the transition that occurs immediately following a divorce and thus does not identify the effects of unstable post-divorce living arrangements (but see Morrison [2000] for an exception). This research gap is noteworthy given that cohabitation among separated or divorced women is outpacing remarriage as a post-divorce living arrangement and cohabiting unions have been noted for their instability (Morrison 2000).

Additionally, the few studies that have examined transitions in children's living arrangements have done so using annual data. Intra-year changes, therefore, are left outside of the scope of the researcher's observation. Observing intra-year changes are important since some living arrangement transitions seem to occur relatively quickly. While 30% of single mother families coreside with parents at some point after a marital disruption, 44% have exited this living situation within six months and over half have left within a year (Jayakody 1999). Graefe and Lichter (1999) showed that among children who have ever lived in a cohabiting arrangement, 25% will experience the dissolution of that arrangement within a year. To capture these intra-year living arrangement transitions, we use data collected every four months.

Despite the prevalence of these living arrangements and increasing recognition of the dynamic nature of living arrangements, practically nothing is known about how or why they might be associated with child development outcomes. However, there are good reasons to suspect that different living arrangements, and the number of transitions made among them, will

affect children differently. Previous research examining why children from single-parent homes fare less well, on average, than children from two-parent homes has been guided by three theoretical explanations: economic resources, socialization, and stress (Haurin 1992; McLanahan and Sandefur 1994). The economic resources perspective argues that substantial economic differences between single-parent and two-parent families produce differences in child outcomes. Family economic resources are hypothesized to account for approximately one-half of the differences in child developmental outcomes between single-mother families and their dual-parent counterparts (McLanahan and Sandefur 1994). The socialization perspective argues that two parents are crucial for providing important parenting behaviors such as supervision and monitoring; it also argues that children benefit from the presence of a male role model in a two-parent home. Finally, the stress theory emphasizes the effects of family structure changes. Changes in family structure are hypothesized to increase disequilibrium in family relations and disrupt changes in relationships outside the family as well. The accumulation of these changes is posited to produce poor developmental outcomes among children (Aquilino 1996; Wu 1996; Wu, Cherlin, and Bumpass 1997; Wu and Martinson, 1993).

This theoretical framework suggest that differences in child outcomes might exist between children of single mothers (ever-married or never-married) living (a) alone with their children; (b) with their parent(s); or (c) with their male partners. For example, studies have shown that remarriage is the most effective route to improving families' economic well-being following a divorce (Morrison 2000). Coresidence or cohabitation could also provide children with greater resources, although one recent study noted that cohabitation was not as effective as remarriage in this regard (Morrison and Ritualo 2000). Mothers' blood relatives might be more inclined to invest in the mothers' children than would cohabitors (see Biblarz and Raftery 1999).

With respect to the socialization perspective, the two-adult structure of a coresidential or cohabiting arrangement might benefit children, providing more adults to supervise, monitor, and be emotionally involved with children. At the same time, cohabiting males or stepfathers may compete with children for mothers' time and resources, thereby diminishing children's well-being. Similarly, the coresidential arrangement could lead to conflict between (potentially financially-dependent) adult children and their own parents and this conflict could be adversely associated with children's adjustment (Aquilino and Supple 1991). Finally, given the often transient nature of cohabiting and coresidential arrangements, as well as the significant risk that a remarriage will dissolve, the stress hypothesis would argue that long-term duration in a single mother alone living arrangement would produce the best outcomes for children (Aquilino 1996; Haurin 1992).

A fourth explanation for observed differences among children in different types of living arrangements involves selection effects. Parents who choose different living arrangements might have different characteristics that affect child outcomes. For example, parents who cannot make and maintain a commitment to a spouse might also have a hard time developing and maintaining a strong attachment to their children. Often drugs, alcohol and mental health problems result in weak or tumultuous relationships between adults and they also affect relationships with children. Another selection bias could arise if single mothers move back in with their family of origin, perhaps to receive social support, because their child is displaying developmental difficulties or adjustment problems. A limitation of much of the research on living arrangements and child development is its lack of accounting for possible selection bias.

Little is known about the well-being and development of children in the diverse living arrangements described above. Coresident grandchildren in homes maintained by their parents

are about equally likely to be poor as all children – 17% vs. 21% (Bryson and Casper 1999). In contrast, children in single-parent families (usually the mother) with coresident single grandmothers have poverty rates of about 39%, which is slightly lower than the poverty rate for children in single-mother families (Bryson and Casper 1999). Research suggests that African American children in multigenerational families with no father present have better school conduct and higher grades in reading relative to African American children who live with their single mother only. In addition, African American children in multigenerational families display one-year gains in a measure of school conduct that are similar to those of their counterparts in intact families (Entwisle and Alexander 1996; Thompson, Entwisle, Alexander, and Sundius 1992). Another study showed that teenagers living in adult single-parent multigenerational families exhibit higher educational attainment and lower rates of fertility than do teenagers living in single-mother families with no grandparent present (Aquilino 1996). Results from research on teenage mothers in multigenerational households are mixed. A few studies have found positive effects of grandmother coresidence on preschoolers' cognitive and emotional development (Leadbeater and Bishop 1994; Pope et al. 1993), while others have found negative effects on these same outcomes (East and Felice 1996; Unger and Cooley 1992). Under certain circumstances, young mothers' coresidence with their mothers is associated with poorer parenting behaviors in the home (Chase-Lansdale, Brooks-Gunn, and Zamsky 1994). Many of these findings come from small-scale, cross-sectional studies or from qualitative observations; the effects of multigenerational coresidence in national longitudinal samples have not been adequately investigated.

Only a handful of studies have examined the links between non-marital cohabitation and the child's environment or developmental outcomes. Manning and Lichter (1996) linked

cohabitation with modest improvements in children's economic well-being. Similarly, London (2000) found that poverty rates (based on household income) were lower among cohabiting families (16% poverty rate) compared to the poverty rate for mothers living independently. Cohabiting families are also more likely to receive private transfers (i.e., loans and gifts from kin and non-kin) than are never-married single-mothers living alone (Hao 1996). With respect to children's behavior, one recent study showed that among families who cohabit following a marital disruption, children have lower scores on tests of cognitive and emotional development; these scores are particularly low for children whose families experience the subsequent disruption of the cohabiting union (Morrison 2000). Using a nationally representative cross-section (the National Survey of America's Families; NSAF), Brown (2000) showed that children in cohabiting unions fare worse than children in married families. In this study, children living in cohabiting families were more similar to children of single mothers in terms of the extent to which they were read to or were taken on outings, the extent to which they were disengaged from school, and in their levels of behavioral and emotional problems. Among teenage children in the NSAF, those who live with their mother and her cohabiting partner have higher rates of emotional, behavioral, and school problems than do teenagers living with married biological parents and also those living with a single mother (Nelson, Clark, and Acs, 2001).

RESEARCH QUESTIONS

In this paper, we draw on longitudinal data from nine interviews conducted every four months from the 1993 SIPP cohort (covering a period of three years from 1993 to 1995) to answer a series of questions. First, we document the living arrangements experienced by children over this 3-year period. We focus on four types of living arrangements for children: (a)

living with a married mother and her husband (who is either the child's biological or step-father; hereafter referred to as a married arrangement); (b) living with a single mother and her parent(s) (hereafter referred to as a coresiding arrangement); (c) living with a single mother and her male partner (hereafter referred to as a cohabiting arrangement); and (d) living with a single mother who is neither cohabiting nor coresiding[1] (hereafter referred to as a single mother arrangement). Second, we document the number of transitions in living arrangements that these children experience and the nature of these transitions.

A special feature of the SIPP is its tri-annual, as opposed to annual, interviews. Thus, our third question asks "how many transitions would be missed if we relied on annual data to measure the number of transitions?" Another feature of our data is our ability to uniquely identify male cohabitors. Therefore, we also examine whether any transitions would be underrepresented if successive waves of living with a single mother and her male partner occurred with two different men.

Our final question is concerned with the association between the patterns in living arrangements and a set of outcomes relevant for child development. We assess children's physical health and academic performance as well as the quality of the child's community and the family's economic hardship.

DATA

The 1993 SIPP is a panel of approximately 12,000 households, each of which was interviewed nine times at four-month intervals. Each interview collects information about family structure and living arrangements. The child outcomes are reported in the "topical module" questionnaires administered only in wave 6 and wave 9. Our sample is limited to the 7,656

[1] Other adults (e.g., siblings, friends, and roommates) may be living in any of these households.

children whose mothers participated in all nine waves of data collection.[2] This restriction is imposed so that we have complete information on the child's living arrangements (which are reported by the mother) during the 3-year observation period. The sample also represents those who were at least two years old by wave 6 so that we can be more sure that they have experienced all living arrangements since wave 1 (child age is not available until the wave 6 interview). Finally, the sample represents children who were present in waves 6 and 9; that is, we drop children with any missing data.[3]

MEASURES

Living arrangements. In addition to identifying children in married, coresiding, cohabiting, and single mother arrangements at each 4-month interval in the 3-year SIPP panel, we construct measures of change over time in living arrangements, including cumulative indices reflecting number of transitions as well as specific patterns of change.[4]

Outcome Measures. We assess two types of measures relevant for children's development. The first type are child outcomes in the domains of physical health and academic performance. For children ages 3-5, we have an assessment of maternal perceptions of children's physical health (measured at wave 9). This measure is coded "1" if children are in "poor" or "fair" health and "0" if they are in "good", "very good", or "excellent" health. For children ages 2-14, we have assessments of whether they have been hospitalized overnight in the past year (1= "yes", 0= "no"; measured at wave 6). For children ages 6-17, we have an

[2] There were 4132 mothers who participated in all 9 waves. 2883 children were dropped from the sample because of this restriction. Unfortunately, we do not have complete information on these children.

[3] We dropped an additional 1082 children as a result of the child age and child missing data restrictions. The children who were dropped differ significantly in terms of wave 6 characteristics from those included in the sample in the following ways: they were more likely to live in married mother arrangements, were less likely to live in cohabiting arrangements, were older, had younger mothers, had worse physical health, had more hospitalizations, were more likely to have repeated a grade, and lived in lower quality communities.

[4] One limitation of the SIPP is that it is not always possible to identify whether a mother's cohabitor is a child's biological father. Details on how living arrangements were constructed are provided in the Appendix.

assessment of whether the child has ever repeated a grade (1= "yes", 0= "no"; measured at wave 6). For children ages 12-17, we have an assessment of whether the child has ever been suspended or expelled from school (1= "yes", 0= "no"; measured at wave 6).

The second type are measures of the child's "developmental environment" and include a measure of mothers' perceptions of community quality and a measure of the family's economic hardship. The 7-item community quality scale, which was measured at waves 6 and 9, assesses mothers' perceptions of cohesion among neighbors, collective efficacy, and danger in the community (Sampson 2001). Mothers rated these items on a 10-point scale; these scores were averaged to form a scale with higher numbers indicating a higher-quality community (alpha= .83 and .84 at waves 6 and 9, respectively). The measure of economic hardship, which is distinct from family's total income (the correlation is -.29), asks mothers to report whether they have experienced each of nine types of material hardship in the past 12 months. Examples include whether or not the families were food insufficient, postponed needed medical care due to lack of finances, and had problems paying bills or rent. Binary responses to these hardship questions are summed to create an index of economic hardship; scores can theoretically range from 0 to 9. This measure is available only at wave 9.

Control Variables

We control for maternal and child age, the total number of children in the household, race (1= "white" 0= "non-white"), mothers' highest grade of education received, and maternal self-reported physical health (coded in the same fashion as child health). We also control for family income which aggregates earnings for each adult in the household and transfer and asset income. In our multivariate analysis, we create a measure of family income in each wave (4-month

period). We use family income from the period that immediately precedes the measurement of the relevant outcome variable in the individual regressions.

RESULTS

Transitions in Living Arrangements

Table 1 presents descriptive information on the family structure and demographic characteristics of the children and their mothers as well as descriptive information on the child development outcomes. The statistics presented are based upon wave 6 data (the first wave in which child outcomes are available).

Table 2 presents the type of living arrangement experienced by the children at each of the nines waves. As can be seen in these cross-sections, approximately 77% of the children were living with a married mother at each wave, about 18% were living with a single mother, about 3% were living in a cohabiting arrangement, and 2% were coresiding. These numbers approximate those presented in Manning and Lichter (1996) who reported, for example, that 3.5% of children lived in a cohabiting-couple household in 1990.

These cross-sections, however, do not reveal important information on transitions. The number of family structure transitions is presented in Table 3. The vast majority of children (90%) experienced no transition. However, about 7% experienced one transition and a small number (about 3%) experienced two or more transitions. Although the percentage experiencing multiple transitions is small, this is a theoretically important group for examining the family stress perspective.

An important feature of the SIPP is that family structure information is available at 4-month intervals rather than at annual (or biennial) intervals. The right-hand columns of Table 3

illustrates how these transitions would be captured if we pretend the SIPP is annual by taking data from only waves 1, 4, and 7. If we relied on these "annual data," we would over-count the number of women experiencing zero transitions, under-count the number of women experiencing one or two transitions, and would (obviously) miss completely those who experienced more than two transitions. Although only a relatively small percentage of children in the present sample would be misclassified according to the less accurate measurement technique, the negative effects of transitions on child development could potentially be greatest at the extremes. Thus, identifying those families with high numbers of transitions could be quite important.

Another important feature of the SIPP is that a unique identifier can be created for mothers' spouses and cohabiting partners. Thus, we can identify transitions from one cohabiting partner to a different cohabiting partner. Of the 211 consecutive cohabitation to cohabitation arrangements, 9 (4.2%) involved different partners. We are also able to identify transitions from cohabitation to marriage with the same partner. In our data, all 35 cohabitation to marriage transitions involved the same partner (in the latter case, because little has changed from the child's perspective, we do not count this as a transition; however, we do count the former case as a transition).

Table 4 presents information on the proportion of time spent in each living arrangement separately by the child's wave 1 living arrangement. There is a relatively high degree of instability among children who were living in either coresiding or cohabiting arrangements at wave 1. For example, children living with married mothers at wave 1 spend 97% of their time in that state over the three years, and children living with single mothers at wave 1 spend 90% of their time in that state. In contrast, those who were coresiding at wave 1 spend only 70% of their

time in that state, and those who were cohabiting at wave 1 spend only 66% of their time in that state.

Table 5 presents information about one of the key questions of interest in this paper – what are the over-time patterns of living arrangements experienced by children? We have categorized the transition patterns of all children into 15 mutually exclusive and exhaustive groups. These patterns will constitute the independent variables in the regression analyses of child outcomes. Most children remain in the same living arrangement in all 9 waves. 82% are always living with a married mother, 15% are always living with a single mother, about 1% always live in either a cohabiting or coresiding arrangement (an additional .7% always live with their mother and the same cohabitor who subsequently marries the child's mother).

The middle section of Table 5 presents information on children who undergo one transition in three years. The most common transition is from living with a married mother to living with a single mother. The second-most common transition is from living with a single mother to living with a married mother. About 10% of the children who undergo one transition move into cohabiting arrangements from single mother arrangements. 9% of these children transition into single mother arrangements from coresidential ones; an additional 9% transition into single mother arrangements from cohabiting ones.

Finally, the bottom third of Table 5 presents the patterns of living arrangements for those children who undergo two transitions. Given the small sample size, we only are able to characterize two of these completely: those who transition from a single mother arrangement into a cohabiting one and back into a single mother arrangement, and those whose mothers divorce and remarry. A small number of children experience three or more transitions but we are not able to characterize them in any meaningful way.

Associations Between Living Arrangements and Child Outcomes

Tables 6 through 8 present the results of our multivariate regression analyses. Full results showing the effects of the control variables are available upon request. In all regressions, children who always live with a married mother are the omitted group.[5]

Child development outcomes

Tables 6 and 7 report the coefficients from logistic regressions of the four child development outcomes.

Hospital visits. Children who always live with a single mother as well as those who always live in a cohabiting arrangement have a greater likelihood of overnight stays in the hospital in the past year relative to children in stable married families. In addition several types of transition experiences are associated with this outcome (when mothers divorce, move in with a cohabitor, break apart from a cohabitor, or undergo 3 or more transitions).

Children's health. Relatively few differences are observed among different types of children for this outcome. However, there are two exceptions. Those who transition from a coresiding arrangement to a single mother arrangement, and those whose mothers divorce and remarry are more likely to be in poor heath relative to those children who always live with a married mother.

Grade repetition. Children who always live in a cohabiting arrangement are more likely to have repeated a grade. In addition, pairwise t-tests (not shown in the table) demonstrate that children who always live in a cohabiting arrangement are more likely to have repeated a grade than are children who always live with a single mother or those who always live in a coresidential arrangement.

[5] In all analyses, standard errors are corrected for the presence of siblings.

Suspension/Expulsion. Children who always live with a single mother as well as those who always live in a cohabiting arrangement, and also those who experience the single-cohabit-single pattern are more likely to ever have been suspended or expelled from school. Pairwise t-tests show that the children who always live in a cohabiting arrangement are more likely to have been suspended or expelled than are children who always live with a single mother or those who always coreside.

Child development environment

Table 8 reports the results of multivariate OLS regressions of community quality at waves 6 and 9 and economic hardship at wave 9.

Community quality. Children who always live with married mothers have higher quality communities than do most other children. An exception is the group of cohabiting children whose mother marries her male partner. These children's mothers view their communities more positively than do continuously married mothers. Pairwise t-tests show that children whose mothers marry their cohabiting partners live in higher quality communities than do those who always live with a single mothers, always coreside, or always cohabit. This is true in both waves 6 and 9. In addition, children who always live with a single mother live in higher quality communities than do children who always coreside or always cohabit, but only in wave 9.

Economic hardship. Most children who do not always live with a married mother experience greater economic hardship than those who always live with a married mother. However, children who always live in a coresiding arrangement do not experience greater economic hardship. Pairwise t-tests show that children who always coreside experience less economic hardship than do children who always live with a single mother.

Sensitivity tests for selection bias

As a means of exploring whether the relationships we describe are causal, we investigate whether transitions in living arrangements that occur after the measurement of the child development outcome can predict that child outcome. We do this to try to capture unmeasured characteristics of mothers who make transitions in living arrangements. For example, mothers with poor relationship skills might be less likely to spend time in married living arrangements. Because these relationship skills might also relate to poor developmental outcomes in children, it might be a mistake to attribute causality to the living arrangements. Similarly, mothers with poor relationship skills might be more likely to undergo future transitions in living arrangements. If so, future transitions in living arrangements might be a proxy for poor relationship skills (or other unobserved characteristics). Since there is no way for future transitions in living arrangement to actually affect previously measured child outcomes, a significant effect of future transitions in a regression model suggests that we may have an unobserved variables problem and that we should interpret our results cautiously.

Therefore, we investigate whether the transitions in living arrangements that occur in waves 7 through 9 can predict the child development outcomes that are measured in wave 6. Similar tests have been conducted by Painter and Levine (2000) and Mayer (1997).

Table 9 presents the results from these sensitivity analyses. We examine two pieces of information from these regressions. First, we examine whether, as a group, transitions in living arrangements that occur between waves 7 and 9 enter significantly into the regression model. Second, we examine whether the coefficients differ in magnitude from those reported in Tables 6 through 8. If the variables do not enter as a group and if the coefficients do not change in

magnitude, we can have more confidence in the causal effect of living arrangements on child developmental outcomes.

Results from four regression equations predicting wave 6 outcomes are presented in Table 9. With one exception, transitions in living arrangement from wave 7-9 do not jointly enter the equations. The exception is for the measure of community quality. However, the result from this equation seems to indicate positive selection. That is, children who are going to experience a transition in their living arrangement tend to live in higher quality communities than those who will not. Furthermore, the coefficients are generally of a similar magnitude in these sensitivity tests as in the original models.

These two findings suggest that selection bias may not be driving these results. That is, we can have more confidence in the causal role of living arrangements on child outcomes.

DISCUSSION

This study yielded three main findings. First, we documented the diversity in living arrangements among single mother households. Second, we provided some evidence that among this set of living arrangements, certain ones are more detrimental to children's development than others. Third, the links between living arrangements and children's development were not accounted for by differences in income and do not appear to be the result of selection into living arrangements.

Although the majority of children in non-married households live with a single mother (78.8%), a substantial fraction of these children live in coresiding (8.6%) and cohabiting (12.6%) arrangements. Over a 3-year period, more than 10% of children experience a transition in their living arrangement. Moreover, a small but potentially important fraction of children experience

3 or more transitions. Our results further demonstrate that coresiding and cohabiting living arrangements are less stable than are single mother and married mother arrangements. While we are not the first to document the diversity of living arrangements among single mothers, our findings confirm the importance of distinguishing among single mother arrangements. We also document the presence of intra-year transitions; 4.2% of all children would be misclassified as to the number of transitions they experience had we not had intra-year data available from the SIPP. Finally, we showed that a small number (4.2%) of children who experience consecutive waves of cohabitation are actually experiencing a change in living arrangements because the cohabiting partner is a different man.

Among the diverse set of non-married mother living arrangements we observe, children who remain in cohabiting and single mother arrangements during the three years appear to have worse developmental outcomes than children whose mother remains married. In contrast, children who remain in coresiding arrangements do not generally differ from children whose mother remains married. The negative effects of cohabitation in particular and the lack of a negative effect of coresiding arrangements are noteworthy given that few studies to date have used nationally representative data to link these living arrangements with child development outcomes. Cohabitation is a particularly important family type to consider given its increasing prevalence. Among children born during the 1990s, 57% of African American children are expected to spend some of their childhood living in a cohabiting couple household, as are 35% of white children and 42% of Hispanic children (Bumpass and Lu 2000).

While the differences between children who experience transitions and those whose mothers remain married are not always statistically significant, transitions are generally associated with poor developmental outcomes. With the outcomes in the SIPP, however, there

was no discernable pattern of specific links between types of transitions and child outcomes. Nevertheless, the results highlight the importance of controlling for transitions in analyses of living arrangements and child development.

While children in coresiding arrangements do not appear to have worse outcomes compared with children whose mothers remain married, one should be cautious before concluding that coresidence is beneficial for children given our finding on the negative effects of transitions in general and the fact that children in coresiding arrangements are more likely to experience a transition than are children in single mother arrangements.

Although the theoretical explanations linking living arrangements with child development provide us with good reasons to examine child development in cohabiting and coresiding living arrangements in addition to single mother ones, the SIPP data are insufficient to test among these theories. However, because we control for current income, our results do indicate that living arrangements have an effect over and above differences in income. In addition, among the groups who are in stable living arrangements over the three year period, we find negative effects for single mother and cohabiting arrangements. Thus, the negative effects of not being in a married-mother arrangement are not solely due to recent transitions into or out of these arrangements. Taken together, these results suggest that neither the economic resources nor the stress hypotheses can fully explain differences in child outcomes in different living arrangements. Finally, our sensitivity tests suggest that these observed differences are not the result of unobserved characteristics that are associated with transitions among living arrangements.[6] Therefore, our results suggest that cohabiting and single mother arrangements

[6] Ideally, we would have relied on fixed effects or instrumental variables analyses to eliminate selection bias. Unfortunately, we could not use a fixed effects approach because none of the child outcomes were repeated. We could not rely on an instrumental variables approach because we could not find a satisfactory instrument—one which predicted living arrangements but not the child outcomes.

may be detrimental to children's development because in these arrangements children are less likely to benefit from optimal caregiver socialization. For example, it may be that important predictors of children's development, such as maternal psychological well-being, positive parenting practices, or healthy caregiver relationships with each other, are less prevalent in these living arrangements. Unfortunately, there are no such measures in the SIPP.[7] At the same time, we would not want to discount the economic resources or stress explanations because these might be imprecisely measured in the SIPP.

In conclusion, we have demonstrated the variability in living arrangements for non-married mothers and the consequences of this variation for children's development. Children living with their unmarried mothers should not be treated as a homogeneous group. As the demography of family structure continues to change and new family forms are introduced, future research will need to attend to these variations and their consequences for child development.

[7] We examined two outcomes that are related to parental socialization—children's participation in extra-curricular activities and, for younger children, story reading. We did not find any significant effects of living arrangements on these outcomes. But, because we do not consider either measure to be a good indicator of parental socialization, we do not report these results.

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Table 1. Descriptive Characteristics of Mothers and Children at Wave 6[a]

Variables	Frequency (Percentage)	Means (s.d)
Demographic Characteristics		
Race		
White	6499 (84.89)[b]	
African American	795 (10.38)	
Other	362 (4.73)	
Living Arrangements		
Married mother	5931 (77.47)	
Single mother	1431 (18.69)	
Coresiding	109 (1.42)	
Cohabiting	185 (2.42)	
Mother's Education		
Less than High School	1112 (14.52)	
High School Graduate	2638 (34.46)	
Some College	2118 (27.66)	
College Graduate	1014 (13.24)	
More than College	774 (11.01)	
Mother's age		36.14 (6.29)
Mother in fair or poor health (1= yes)	2577 (33.66)	
Total number of children in household		2.50 (1.21)
Age of child (years)		9.09 (4.22)
Total family income in prior 4-month period (in dollars)		13,342.6 (10,226.54)
Child Outcomes[c]		
Positive ratings of the community (Ages 2-17, n=7656)		5.94 (2.81)
Economic hardship[d] (Ages 3-17, n=7656)		0.06 (0.14)
Child in fair or poor health (1= yes) (Ages 2-5, n=887)	109 (12.29)	
Hospitalized in the Previous Year (1=yes) (Ages 2-17, n=7656)	132 (1.97)	
Ever Repeated a Grade (1=yes) (Ages 6-17, n=5066)	501 (10.14)	
Ever Suspended or Expelled (1=yes) (Ages 12-17, n=2151)	200 (9.30)	

a. There are 7,656 children in the sample.
b. Unweighted frequency and means are reported.
c. Sample sizes for each age-specific outcome are reported in parentheses.
d. Economic hardship is measured in wave 9.

Table 2. Living Arrangements of Children at Each Observation

Wave	Living w/ single mother	Coresiding	Cohabiting	Living w/ married mother
Wave 1	1339 (17.5)	148 (1.9)	214 (2.8)	5955 (77.8)
Wave 2	1337 (17.5)	148 (1.9)	208 (2.7)	5963 (77.9)
Wave 3	1338 (17.5)	136 (1.8)	220 (2.9)	5962 (77.9)
Wave 4	1387 (18.1)	123 (1.6)	214 (2.8)	5932 (77.5)
Wave 5	1407 (18.4)	118 (1.5)	192 (2.5)	5939 (77.6)
Wave 6	1431 (18.7)	109 (1.4)	185 (2.4)	5931 (77.5)
Wave 7	1454 (19.0)	104 (1.4)	174 (2.3)	5924 (77.4)
Wave 8	1481 (19.3)	104 (1.4)	162 (2.1)	5909 (77.2)
Wave 9	1470 (19.2)	100 (1.3)	183 (2.4)	5903 (77.1)

a. Unweighted frequency and percentage are reported.

Table 3. Number of Transitions in Living Arrangements

Number of transitions	Tri-Annual Data		Annual Data[a]	
	Frequency	Percentage	Frequency	Percentage
0	6859	89.59	7019	91.68
1	571	7.46	537	7.01
2	180	2.35	100	1.31
3	28	0.37	-	-
4	14	0.18	-	-
5	4	0.05	-	-
Total	7656	100.00	7656	100.00

a. Annual data are calculated using waves 1, 4, and 7 only.

Table 4. Proportion of Time Spent in Each Living Arrangement

% Time Spent in:	Married Mother	Single Mother	Coresiding	Cohabiting
All children (n=7656)	77.5	18.4	1.6	2.5
Arrangement at wave 1:				
Married mother (n=5955)	97.4	2.3	0.1	0.1
Single mother (n=1339)	6.2	90.0	0.6	3.3
Coresiding (n=148)	7.8	21.4	69.5	1.3
Cohabiting (n=214)	17.6	16.3	0.3	65.8

Table 5. Living Arrangement Transition Patterns

Origin State	1st Transition	2nd Transition	Frequency (%)	% Based on Total
No Transition				
Married			5615 (81.9)	73.3
Single mother			1039 (15.1)	13.6
Coresiding			68 (0.9)	0.9
Cohabiting			89 (1.3)	1.2
Cohabiting	Married		48 (0.7)	0.6
Subtotal			6859 (100.0)	89.6
One Transition				
Married	Single mother		239 (41.9)	3.1
Single mother	Married		137 (24.0)	1.8
Single mother	Cohabiting		56 (9.8)	0.7
Coresiding	Single mother		49 (8.5)	0.6
Cohabiting	Single mother		43 (7.5)	0.6
Other			47 (8.2)	0.6
Subtotal			571 (100.0)	7.5
Two Transitions				
Single mother	Cohabiting	Single mother	43 (23.9)	0.6
Married	Single mother	Married	52 (28.9)	0.7
Other			85 (47.2)	1.1
Subtotal			180 (100.0)	2.3
Three or More Transitions			46	0.6
Total			7656	100.0

Table 6. OLS Regression Coefficients of Living Arrangement Patterns on Child Development Environment

Patterns	Community Quality @ Wave 6	Community Quality @ Wave 9	Economic hardship @ Wave 9
	Coefficient (s.e.)	Coefficient (s.e.)	Coefficient (s.e.)
Always Single (S)	-.42 (.15)**	-.71 (.16)***	.07 (.01)***
Always Coresiding (CR)	-.85 (.52)	-2.25 (.52)***	.02 (.02)
Always Cohabiting (CH)	-.70 (.32)*	-1.51 (.44)***	.06 (.03)*
CH-M	1.94 (.86)*	1.18 (.47)**	.03 (.02)
M-S	.05 (.31)	-.55 (.28)#	.06 (.02)***
S-M	-.51 (.39)*	-.22 (.35)	.06 (.03)*
S-CH	-.15 (.42)	-.72 (.55)	.10 (.03)**
CR-S	-.53 (.49)	-.00 (.63)	-.00 (.02)
CH-S	.38 (.75)	-.12 (.37)	.02 (.03)
Other types of one transition	-1.63 (.51)***	-1.05 (.60)#	.04 (.04)
S-CH-S	.05 (.78)	-1.86 (.64)**	.11 (.04)**
M-S-M	-1.11 (.77)	-1.02 (.58)#	.09 (.05)#
Other types of two transitions	-.49 (.56)	-.68 (.47)	.08 (.03)**
Three or more transitions	-1.20 (1.0)	-.25 (.71)	.07 (.03)*
Constant	4.72 (.38)***	4.66 (.44)***	.08 (.02)***
R^2	.07	.07	.10

Always Married (M) is the omitted category; additional controls include race, age of mother, age of child, education of mother, family income, number of children, and health status of mother; standard errors are corrected for intra-household correlation between observations; # $p < .1$, * $p < .05$, ** $p < .01$, and *** $p < .001$.

Table 7. Logistic Regression Coefficients and Odds Ratios of Living Arrangement Patterns on Child Academic Outcomes

Patterns	Grade Repetition		Suspension or Expulsion	
	Coefficient (s.e.)	Odds Ratio (s.e.)	Coefficient (s.e.)	Odds Ratio (s.e.)
Always Single (S)	.25 (.15)	1.28 (.20)	.75 (.23)***	2.12 (.48)***
Always Coresiding (CR)	-.12 (.46)	.88 (.41)	- .35 (.75)	.71 (.53)
Always Cohabiting (CH)	.86 (.32)**	2.36 (.76)**	1.12 (.54)*	3.06 (1.6)*
CH-M	-.37 (.94)	.69 (.65)	.67 (1.6)	1.95 (3.0)
M-S	-.03 (.33)	.97 (.32)	- .26 (.63)	.77 (.49)
S-M	-.38 (.46)	.68 (.31)	.63 (.57)	1.88 (1.1)
S-CH	-.68 (.74)	.51 (.38)	.88 (.88)	2.41 (2.1)
CR-S	.39 (.66)	1.48 (.97)	.05 (.96)	1.05 (1.0)
CH-S	.53 (.54)	1.69 (.91)	-.14 (1.1)	.87 (.94)
Other types of one transition	.50 (.54)	1.66 (.88)	-.14 (1.1)	.87 (.96)
S-CH-S	.01 (.60)	1.01 (.60)	2.65 (.64)***	14.14 (9.1)***
M-S-M	.50 (.69)	1.65 (1.1)	-	-
Other types of two transitions	.04 (.54)	1.04 (.56)	-.42 (1.0)	.66 (.67)
Three or more transitions	.60 (.84)	1.83 (1.5)	-	-
Constant	-3.16 (.42)***		-2.50 (1.0)***	

Always Married (M) is the omitted category; additional controls include race, age of mother, age of child, education of mother, family income, number of children, and health status of mother; standard errors are corrected for intra-household correlation between observations; # $p < .1$, * $p < .05$, ** $p < .01$, and *** $p < .001$.

Table 8. Logistic Regression Coefficients and Odds Ratios of Living Arrangement Patterns on Child Health Outcomes

Patterns	Hospitalization		Poor Health	
	Coefficient (s.e.)	Odds Ratio (s.e.)	Coefficient (s.e.)	Odds Ratio (s.e.)
Always Single (S)	.66 (.26)*	1.92 (.50)*	.41 (.32)	1.50 (.47)
Always Coresiding (CR)	.93 (.82)	2.54 (2.1)	1.75 (1.9)	5.74 (10.7)
Always Cohabiting (CH)	1.11 (.43)*	3.03 (1.3)*	-.37 (1.2)	.69 (.83)
CH-M	-	-	1.10 (.74)	3.01 (2.2)
M-S	.81 (.43)#	2.24 (.97)#	.31 (.53)	1.37 (.73)
S-M	.35 (.73)	1.42 (1.0)	-.10 (.79)	.90 (.72)
S-CH	1.11 (.59)#	3.04 (1.8)#	-	-
CR-S	.25 (1.1)	1.28 (1.3)	1.76 (.86)*	5.80 (5.0)*
CH-S	.89 (.73)	2.43 (1.8)	-.08 (1.2)	.92 (1.1)
Other types of one transition	1.28 (.73)#	3.59 (2.6)#	-	-
S-CH-S	-	-	.41 (1.1)	1.50 (1.6)
M-S-M	.30 (.99)	1.34 (1.3)	1.88 (.82)*	6.58 (5.4)*
Other types of two transitions	-	-	-	-
Three or more transitions	1.37 (.78)#	3.95 (3.1)#	1.02 (.76)	2.76 (2.1)
Constant	-2.96 (.66)***		-2.83 (.82)***	

Always Married (M) is the omitted category; additional controls include race, age of mother, age of child, education of mother, family income, number of children, and health status of mother; standard errors are corrected for intra-household correlation between observations; # $p < .1$, * $p < .05$, ** $p < .01$, and *** $p < .001$.

Table 9. Sensitivity Tests: Regressions of Wave 7-9 Transitions on Wave 6 Outcomes

Patterns	Community Quality	Hospitalization	Grade Repetition	Suspension or Expulsion
	Coefficient (s.e.)	Coefficient (s.e.)	Coefficient (s.e.)	Coefficient (s.e.)
Wave 1 to Wave 6 Living Arrangements				
Always Single (S)	-.43 (.16)**	.61 (.27)*	.28 (.16)#	.66 (.23)**
Always Coresiding (CR)	-1.15 (.55)*	.83 (.95)	-.49 (.49)	-.57 (.82)
Always Cohabiting (CH)	-.81 (.35)*	1.08 (.45)*	.87 (.34)*	.83 (.63)
CH-M	2.25 (.89)*	-	-.05 (.99)	.84 (1.7)
M-S	.05 (.32)	.74 (.44)#	-.01 (.33)	-.26 (.64)
S-M	-.50 (.39)	.36 (.73)	-.38 (.46)	.67 (.58)
S-CH	-.57 (.51)	.86 (.74)	-.70 (.84)	.32 (1.1)
CR-S	-.51 (.49)	.16 (1.1)	.53 (.63)	-.22 (1.1)
CH-S	.41 (.75)	.97 (.74)	.57 (.55)	-.11 (1.1)
Other types of one transition	-1.93 (.55)***	1.14 (.84)	.19 (.62)	-.32 (1.3)
S-CH-S	.06 (.78)	-	.08 (.60)	2.46 (.62)***
M-S-M	-1.06 (.76)	.34 (.99)	.51 (.69)	-
Other types of two transitions	-.61 (.56)	-	.03 (.55)	-.53 (1.1)
Three or more transitions	-1.23 (1.0)	1.12 (.86)*	.70 (.82)	-
Wave 7 to Wave 9 Transitions				
M-S	.18 (.33)	.15 (.65)	.20 (.38)	-.67 (.96)
S-M	-.20 (.46)	.84 (.57)	-.83 (.65)	.76 (.55)
S-CH	.28 (.70)	.09 (.76)	-.19 (.55)	.88 (1.0)
CR-S	1.96 (.72)**	.60 (1.2)	1.35 (.71)#	.71 (1.2)
CH-M	.63 (.68)	.31 (1.1)	-.32 (1.2)	.76 (1.6)
CH-S	.97 (.59)	.55 (.91)	.22 (.70)	1.38 (1.1)
Other types of one transition	1.81 (.82)*	.57 (1.2)	.13 (1.0)	1.85 (1.3)
Other types of two transitions	-.87 (.60)	-	-.15 (1.1)	-
P-value	0.03	0.89	0.66	0.44

Coefficients from community quality model are from an OLS regression; coefficients from hospitalization, grade repetition, and suspension or expulsion models are from logistic regressions. Always Married (M) is the omitted category; additional controls include race, age of mother, age of child, education of mother, family income, number of children, and health status of mother; standard errors, reported in parentheses, are corrected for intra-household correlation between observations; P-value is from a test of the joint significance of the wave 7 to wave 9 transitions; # $p < .1$, * $p < .05$, ** $p < .01$, and *** $p < .001$.

Appendix: Construction of the living arrangement measures using the core data files of the SIPP

Mothers are defined as women who are the parent of a child ages 1-18 living in the same household. Women with biological children not living with them are defined as mothers in our sample.

(a) A single mother is one who reports that she does not have a spouse living with her. Thus, a married mother who is separated (but not necessarily divorced) from her husband is defined as a single mother.

(b) Coresiding mothers are single mothers who live in the same household as their parent(s).

(c) Cohabiting single mothers are more difficult to define in the SIPP. We adopt the following criteria: first, any coresiding single mother was assumed not to be also cohabiting with a male partner. Of those remaining, those meeting any of the following criteria were defined as cohabiting: (1) the single mother reports being the "partner or roommate" of a male reference person of the household and she is within 15 years of that man's age; (2) the single mother reports being unrelated to the male reference person who is within 15 years of her age, but she is related to someone in the household (presumably her child); (3) the single mother is the reference person for the household and there is a male within 15 years of her age in the household who reports being (a) the reference person's "partner or roommate", (b) unrelated to the reference person but related to someone in the household, or (c) unrelated to the reference person. In two cases, more than one man was identified as a potential cohabitor. These two cases were dropped from our sample. See Dickert-Conlin (1998) for additional discussion on defining cohabitation in the SIPP.

(d) The remaining single mothers are those who are not cohabiting with a male partner or coresiding with their parent(s). However, these single mothers could be living with other adults.

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